



2013 Arizona Vector-borne & Zoonotic Diseases Update

Arizona Department of Health Services

2014 Vector Control Workshop

May 15th, 2014



Overview of 2013 VBZD cases

- Brucellosis
- Hantavirus
- Plague
- Psittacosis
- Q Fever
- Dengue
- Tick Borne Relapsing Fever (TBRF)
- West Nile Virus
- Rocky Mountain Spotted Fever (RMSF)

2013 Brucellosis Update

- 2 human cases
 - Maricopa residents
 - 16 y.o. male, 14 y.o. female
 - Hispanic
 - *Brucella melitensis*
 - No travel
 - Consumed unpasteurized dairy products from Mexico months prior

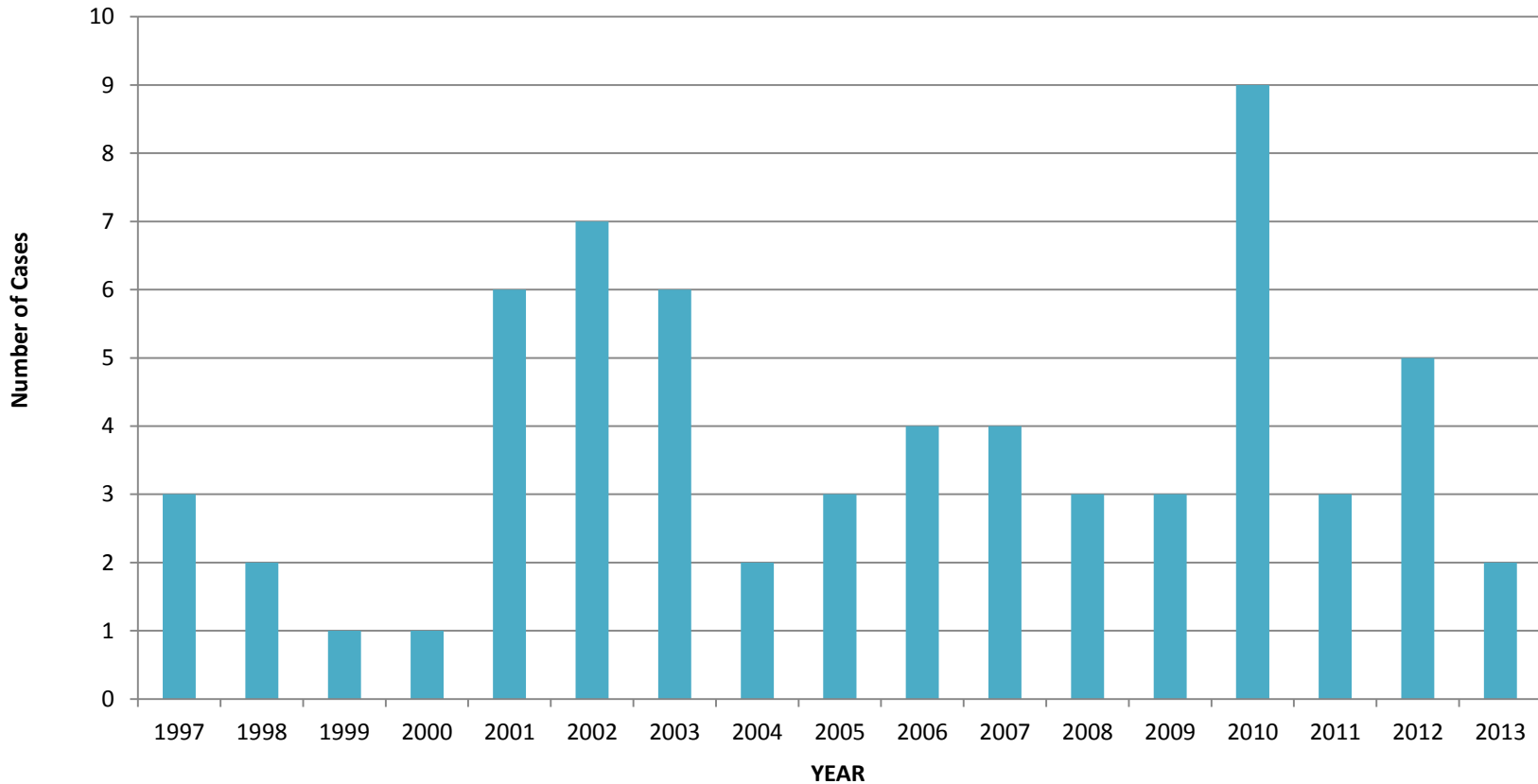


Brucella melitensis

- Principal host – goats and sheep
- Most pathogenic in humans
- Considered to be eradicated in the U.S. since the early 1970s
- Sporadic cases in humans in the U.S. occur related to consumption of unpasteurized dairy products from counties (e.g., Mexico) where the disease is present



Brucellosis Cases, Arizona 1997 - 2013



2013 Hantavirus Update

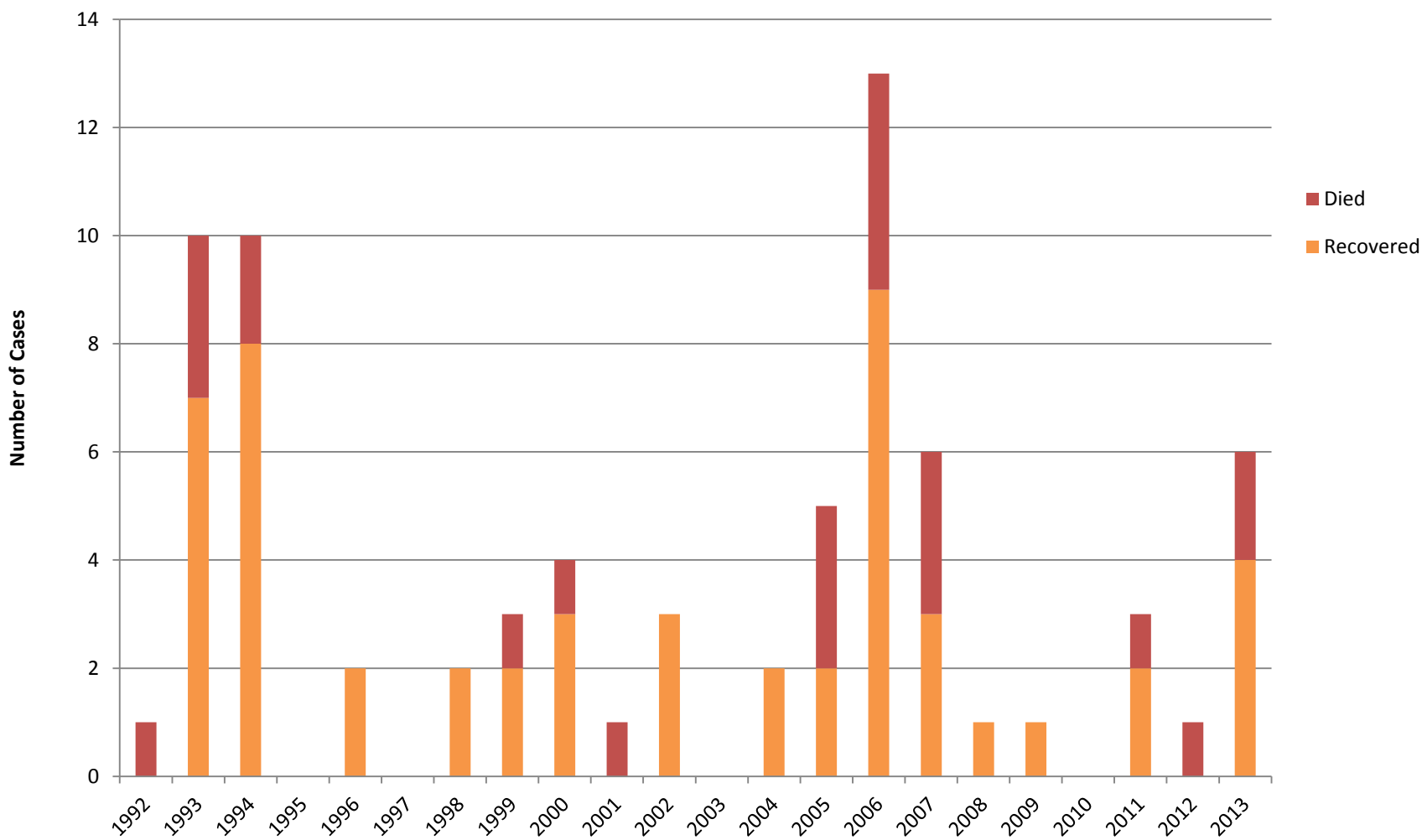
- 6 cases (3-Apache, 2-Coconino, 1-Graham)
 - Median age: 42 (26-75 y.o.);
 - 50% female
 - 2 fatal cases
 - 3 summer cases (May-Aug),
3 fall cases (Sept-Dec)
- Common Sx: fever (67%), myalgias, GI symptoms, SOB, respiratory distress, thrombocytopenia (100%)
- Varying severity – 67% intubated/critical care



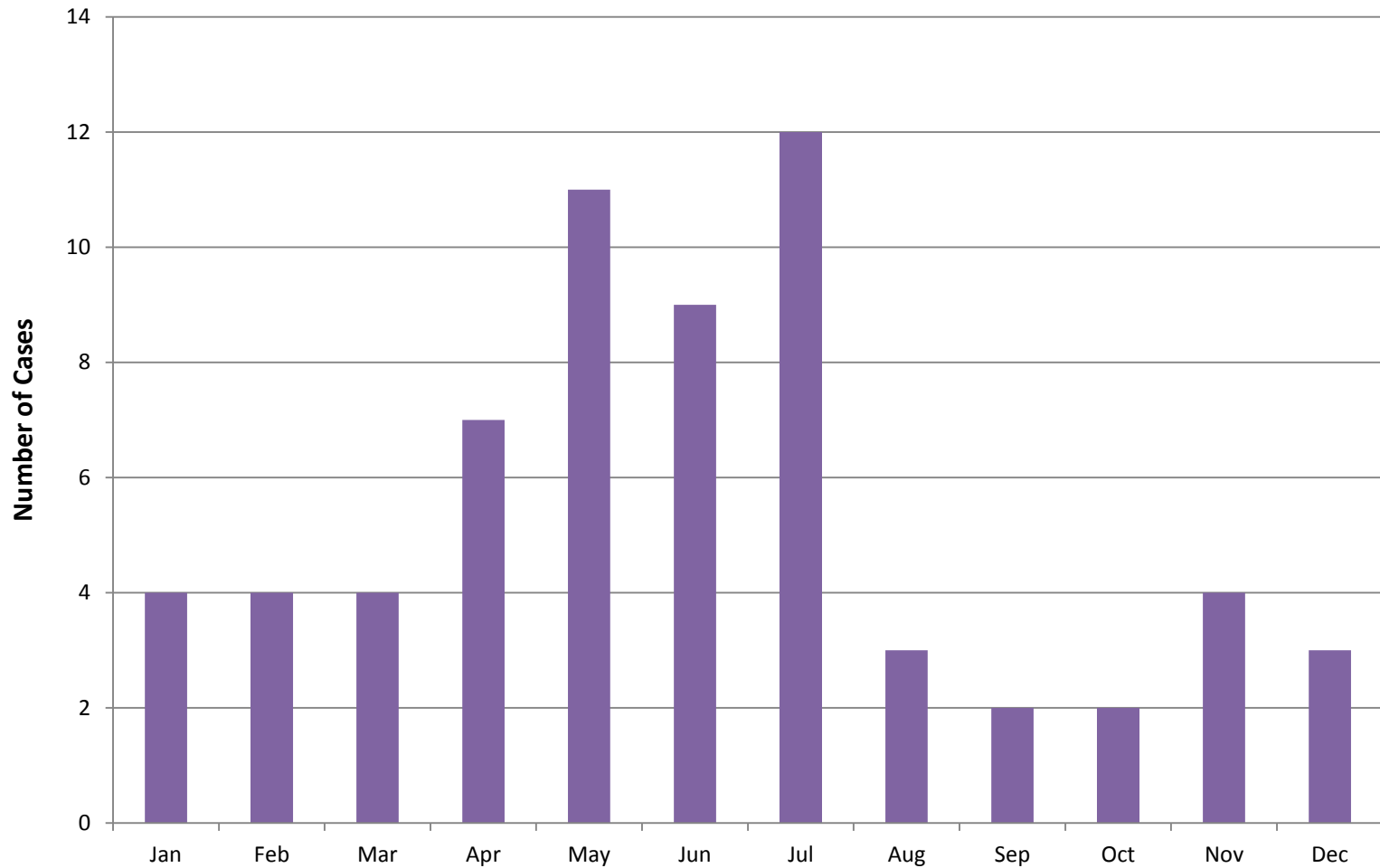
Hantavirus

- 5/6 cases reported from Northern Arizona but can occur anywhere in the state
- 5/6 reported rodent exposure in the previous months before onset
- Testing: commercial labs for rule outs, **high suspect cases should be tested at ASPHL**
 - False positives common at commercial labs
 - Contact PH for testing/reporting high suspect cases

Hantavirus Cases in Arizona by Year, 1992-2013



Hantavirus Cases in Arizona by Month, 1992-2010



2013 Plague Activity Update

- In August, 5 feral cat deaths in Navajo County – 2 tested positive for plague
 - Living cat with bubo on neck also found
- PHS staff collected fleas from inactive prairie dog colonies → tested positive for *Y. pestis* at NAU
- Pest/flea control
- No human cases



2013 Psittacosis Activity

- In August, a peach-faced lovebird die-off was reported in residential area near Mesa, AZ
- Sample of the dead birds tested positive for *Chlamydophila psittaci*
- A resident with a bird feeder/bird bath originally reported the die-off and had a respiratory illness
- Advised to seek medical care



Psittacosis case

- 50 y.o. female Maricopa resident
- Sx: fever, sore throat, night sweats, cough, congestion, history of asthma
- Seen at urgent care early Sept; Rx – amoxicillin
- Prescription not effective
- Reported bird-die off and cleaned a good amount of bird droppings prior to onset – had potential for aerosolization/inhalation

Psittacosis should be considered if:

- Fever, chills, headache, muscle aches, dry cough.
Pneumonia often evident on x-ray.
 - Typically presents as flu-like symptoms and can progressive to severe pneumonia or even death
- Bird owner, pet shop employee, veterinarian OR exposure to dried bird droppings
- Treatment: Doxycycline or other tetracycline for 10-14 days after fever subsides

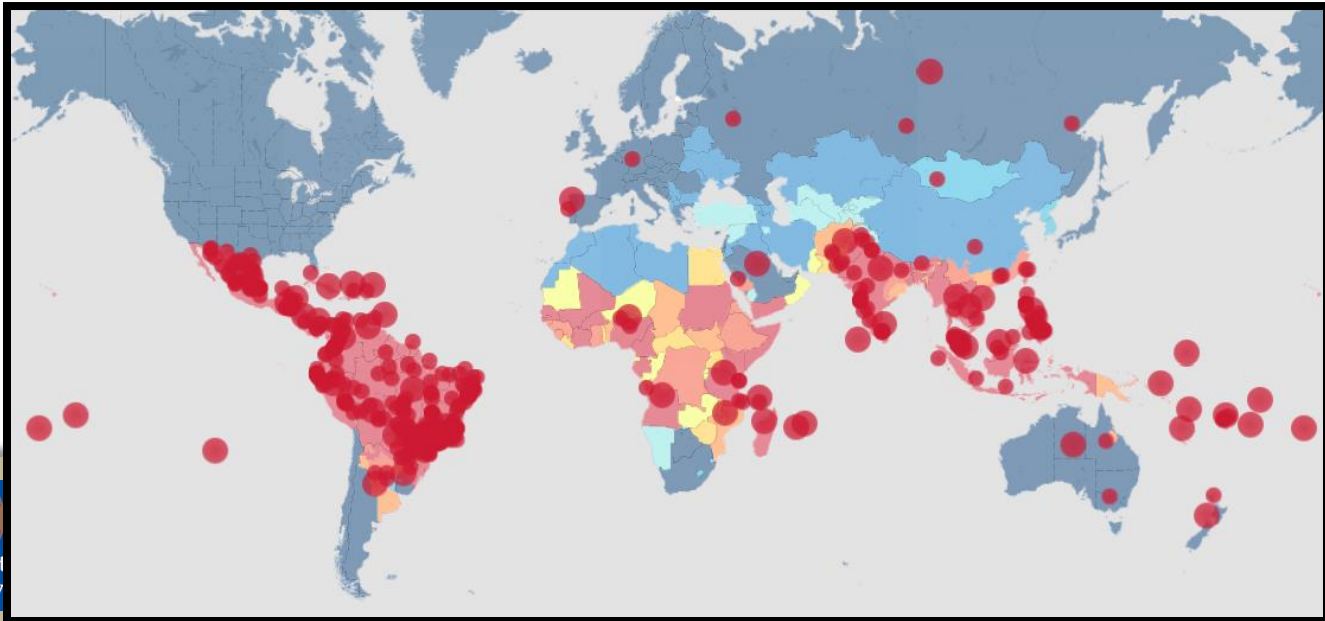
2013 Q Fever Update

- Caused by infection with *Coxiella burnetii*
- Contact with infected animals (sheep, cattle, goats are reservoirs) or exposure to contaminated environments (food or water)
- 8 cases in 2013
 - 3 acute, 5 chronic
 - Median age: 49 (12-86 y.o.)
 - 12.5% female



2013 Dengue Update

- 3 cases
 - All international travel exposure
 - India, China, Myanmar, Costa Rica
 - Median age: 33 (19-55 y.o.)
 - 33% female



2013 Leptospirosis Update

- A bacterial disease that can spread through the urine of infected animals
- Can get into water or soil and can survive there for weeks to months
- 1 case
 - 27 y.o. male
 - International travel to Guam where he swam in a natural pool

2013 Malaria Update

- Malaria is spread by the bite of a female *Anopheles* mosquito and can cause fever, chills, and flu-like illness
- 29 cases
 - 19 *P. falciparum*, 6 *P. vivax*, 1 *P. malariae*, 2 unknown
 - All internationally imported
 - Median age: 36 (5-71 y.o.)
 - 38% female



2013 Tick Borne Relapsing Fever Update

- 1 case – Maricopa County resident
 - 34 y.o. male
 - Relapsing fever, optic neuritis and known tick exposure
 - Illness lasted over 3 weeks with 3 relapses
 - Father (not an AZ resident) displayed similar symptoms
 - Exposure from a cabin in Apache County

2013 West Nile Virus Update

- 62 human cases (6 deaths) reported in Arizona
 - Apache, Gila, Greenlee, La Paz, Maricopa (52), Navajo, Pima (2), Pinal (2), and Yavapai
 - 84% of reported cases in Maricopa County (~12% case fatality rate)
 - 77% of reported cases were neuroinvasive
 - Median age: 56 (range 12-93 y.o.)
 - 42% female



2013 WNV Case Demographics

Race	
White	44
Black	1
Asian	0
Hawaiian/ Pacific Islander	0
Other	7
Unknown	7
American Indian/ Native Alaskan	3

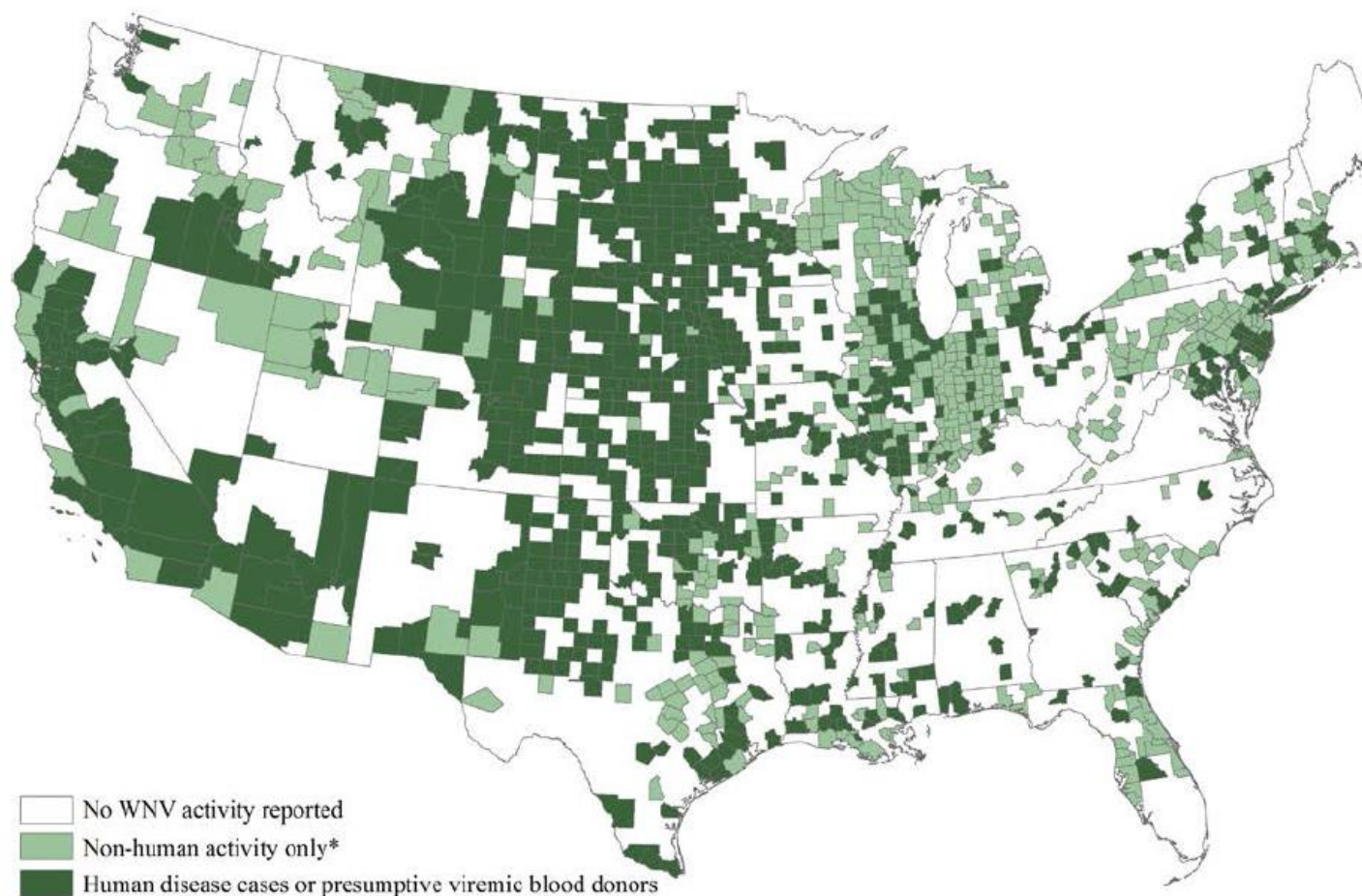
Ethnicity	
Hispanic Or Latino	7
Not Hispanic Or Latino	44
Unknown	11



Viremic Donors	
Symptomatic	1
Asymptomatic	5

Clinical Presentation	
Encephalitis	26
Meningitis	22
Fever	10
Acute Flaccid Paralysis	5
Other	3
Unknown/ Unspecified	1

Figure 1. West Nile virus (WNV) activity reported to ArboNET, by county — United States, 2013

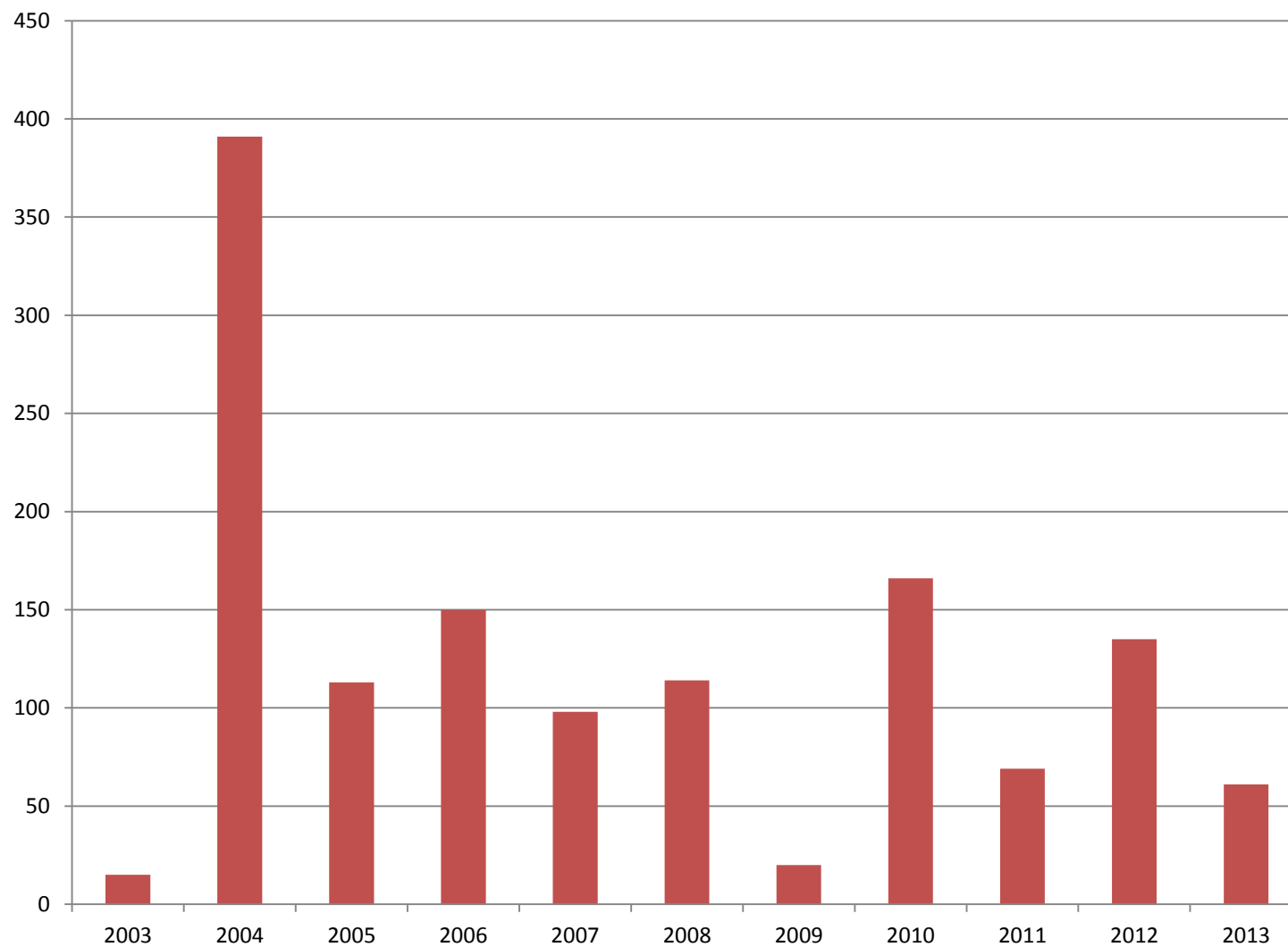


*WNV veterinary disease cases or WNV infections in mosquitoes, birds, or sentinel animals.

West Nile Virus, Arizona, 2003-2013

YEAR	WNV	Top 3
2003	15	CO, NE, SD
<u>2004</u>	391	CA, AZ, CO
2005	113	CA, IL, SD
2006	150	ID, TX, CA
2007	98	CO, CA, ND
<u>2008</u>	114	CA, AZ, CO
2009	20	TX, CA, CO
<u>2010</u>	166	AZ, NY, CA
<u>2011</u>	69	CO, AZ, MS
2012	135	TX, CA, LA
2013	62	CA, CO, NE

West Nile Virus, Arizona, 2003-2013



2013 RMSF Update



300+ cases 2003-2013

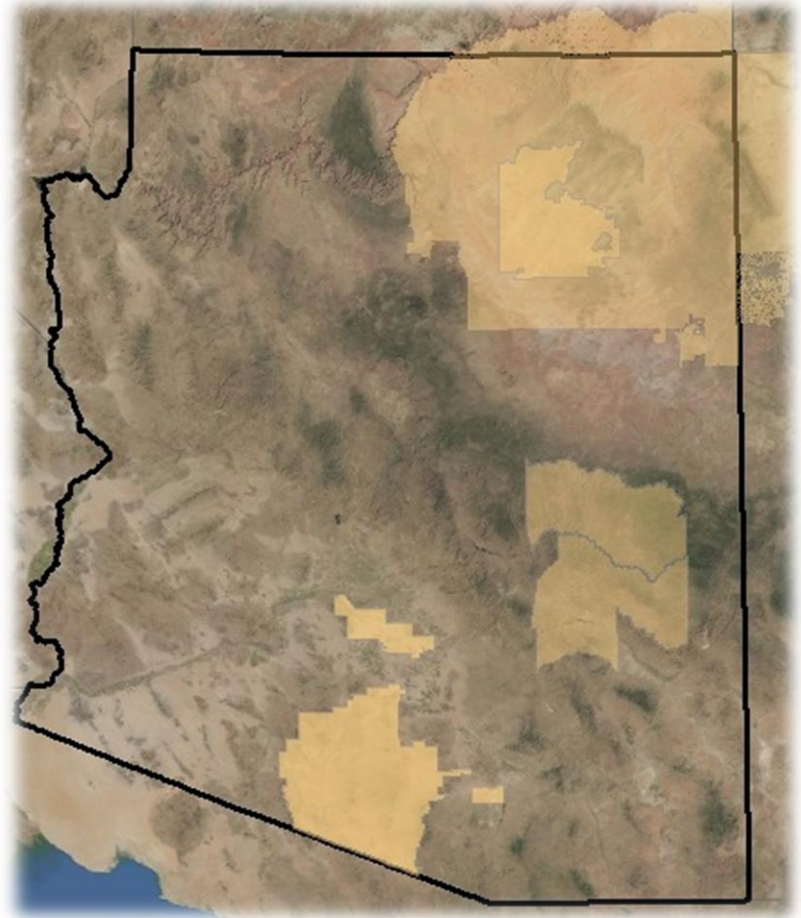
20 deaths

Human and/or canine RMSF on
6 different AZ reservations



What makes RMSF in AZ so Different?

- New tick vector
- Seasonality in AZ
- Tribal lands
- Age distribution
- During 2010-2011
>200X the national
RMSF incidence
- Prevention of human
cases requires
controlling ticks on dogs



Questions??

Contact Information:

Selam Tecle, ADHS-Epi
selam.tecle@azdhs.gov

o: (602) 364-3890

